



## U.S. ELECTION ASSISTANCE COMMISSION

Voting System Testing and Certification Program

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**Sent via mail and e-mail**

### **RE: Notice of Initiation of Formal Investigation**

Pursuant to section 7.4 of the Election Assistance Commission's (EAC) Voting System Testing and Certification Program Manual the Decision Authority (Executive Director, Tom Wilkey) has authorized (attached) the EAC's Certification Program Director (Brian Hancock) to open a formal investigation of Election Systems and Software's (ES&S) Unity 3.2.0.0 voting system. This formal investigation arises as a result of an issue reported by ES&S to the EAC on June 6, 2010 and is based on an informal staff investigation of the issues following county notification and public notice of the issues.

### **Facts**

EAC first became aware of a possible issue with the Unity 3.2.0.0 voting system used in Cuyahoga County, Ohio as a result of an article published in the *Cleveland Plain Dealer* on April 10, 2010. This issue was later confirmed by Cuyahoga County in conversations with the EAC. ES&S then reported the issue to EAC in June of 2010. As a result of ES&S's report on the freeze/shutdown issue, EAC began an informal inquiry into the nature and cause of the problem. ES&S has worked with EAC throughout the informal inquiry to provide all information necessary to fully understand the issue, including a detailed root cause analysis. ES&S's cooperation was vital to EAC understanding the cause of the freeze/shutdown and proposed solutions to the issue.

Since identifying the freeze/shutdown issue EAC identified two additional possible non-conformities. These non-conformities arose as result of information gathered during the informal inquiry and testing conducted on the DS200 to evaluate proposed solutions to the freeze/shutdown issue. ES&S is aware of these additional issues and worked with EAC to inform all DS200 users of the issues and workarounds for them. None of the issues identified are likely to have had an impact on the integrity or results of an election or to impact the integrity of future elections. They do, however, represent possible non-conformities to the Voluntary Voting System Guidelines (VVSG).

ES&S identified and submitted possible fixes for each of the issues identified in the summary below. These fixes are part of the Unity 3.2.1.0 certification effort currently under test at Wyle Laboratories. EAC will closely monitor the progress of this testing and understands that ES&S plans on upgrading all Unity 3.2.0.0 customers to Unity 3.2.1.0, should the system pass testing.

## Scope of Investigation

The focus of the Investigation shall be the ES&S DS200 Precinct Count Optical Scanner (Firmware Version 1.3.10.0) contained in the ES&S Unity 3.2.0.0 EAC certified voting system. Specifically, the investigation will focus on the following possible non-conformities with the VVSG:

1. **Issue:** Freeze/shutdown. The DS200 initiates the shutdown process whereupon it will complete approximately 90% of the shutdown process and then freeze. The screen saver will initiate after the appropriate time has elapsed. The DS200 Unit will not accept ballots in the frozen state.

System Non-conformity:

### 2002 VSS Volume 1 Section 2.2.1 & 3.4.3

*2.2.1.b – Provide system functions that are executable only in the intended manner and order, and only under the intended conditions*

*3.4.3 – Reliability: The reliability of voting system devices shall be measured as Mean Time Between Failure (MTBF) for the system submitted for testing. MTBF is defined as the value of the ratio of operating time to the number of failures which have occurred in the specified time interval. A typical system operations scenario consists of approx. 45 hours of equipment operation, consisting of 30 hours of equipment set-up and readiness testing and 15 hours of elections operations. For the purpose of demonstrating compliance with this requirement defined as any event which results in either the:*

- *Loss of one or more functions*
- *Degradation of performance such that the device is unable to perform its intended function for longer than 10 seconds*

*The MTBF demonstrated during certification testing shall be at least 163 hours.*

2. **Issue:** Failure to log. Cuyahoga County election officials provided EAC the logs from their May 4 and August 8, 2010 elections. The May 4 election used over 1,000 DS200's; the August 8 election was smaller, providing logs from only 12 machines. Review of these records identified an additional issue. The freeze/shutdown issue does not result in any record of its occurrence in the system logs.

System Non-conformity:

### 2002 VSS Volume I 2.2.4.1 Integrity:

*Integrity measures ensure the physical stability and function of the vote recording and counting processes.*

*To ensure system integrity, all systems shall:*

- g. Record and report the date and time of normal and abnormal events.*
- i. Detect and record every event, including the occurrence of an error condition that the system cannot overcome, and time-dependent or programmed events that occur without the intervention of the voter or a polling place operator.*

3. **Issue:** Ballot Skew. When a 17" ballot is inserted incorrectly into the unit the lower left and right hand corners of the ballot are not accurately read.

System Non-conformity:

### 2002 VSS Volume I 2.2.2.1 Common Standards:

*To ensure vote accuracy, all systems shall:*

*2.2.2.1.c – Record each vote precisely as indicated by the voter and be able to produce and accurate report of all votes cast.*

4. **Issue:** Vote miscount. The DS200 accepts a voted ballot but does not record that ballot on its internal counter.

System Non-conformity:

**2002 VSS Volume I 2.1.8 Ballot Counter:**

*For all voting systems, each piece of voting equipment that tabulates ballots shall provide a counter that:*

- b. Records the number of ballots cast during a particular test cycle or election.*

**Manufacturer Opportunity to Provide Information**

As stated in section 7.4.4.2 of the Certification Manual ES&S has the opportunity to provide any information it deems relevant to the scope of the investigation detailed above. ES&S is encouraged to provide any documents, testing data, or system specs it believes could help aid the EAC in making a determination. All information should be sent to the Program Director.

**Estimated Timeline for Investigation**

EAC estimates this investigation will take approximately 10 weeks to conduct. Several additional weeks may be necessary to compile the information and create the final report of investigation.

**Conclusion**

As you are aware, a formal investigation is concluded with the issuance of a formal report by the EAC. The purpose of the formal report is to document all relevant and reliable information gathered during the investigation and to document the conclusions reached by the Decision Authority. Per section 7.4.7 of the Certification Manual the Decision Authority can determine each allegation to be either substantiated or unsubstantiated. Please refer to section 7.0 of the Certification Manual for all of the details regarding the formal investigation, notices of non-compliance, and decertification. If you have any questions please do not hesitate to contact me.

A handwritten signature in black ink, appearing to read "Brian J. Hancock". The signature is fluid and cursive, with the first name "Brian" and last name "Hancock" clearly legible.

Brian J. Hancock  
Director  
Testing & Certification Program  
U.S. Election Assistance Commission